Abstract

Proton-conducting polymer membrane comprising polymers containing phosphonic acid groups and its use in fuel cells

The present invention relates to a proton-conducting polymer membrane comprising polymers containing phosphonic acid groups which is obtainable by a process comprising the steps

A) mixing of vinyl-containing phosphonic acid with one or more aromatic tetraamino compounds with one or more aromatic carboxylic acids, esters thereof, acid halides thereof or anhydrides thereof which contain at least two acid groups per carboxylic acid monomer, and/or
mixing of vinyl-containing phosphonic acid with one or more aromatic and/or heteroaromatic diamino carboxylic acids, esters thereof, acid halides thereof or anhydrides thereof,

B) heating of the mixture obtainable according to step A) under inert gas at temperatures of up to 350°C to form polyazole polymers,

C) application of a layer using the mixture from step A) and/or B) to a support,

D) polymerization of the vinyl-containing phosphonic acid present in the sheet-like structure obtainable according to step C).